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Developing an Interdisciplinary Master's Program in Applied Behavior Analysis

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At many universities, faculty interested in behavior analysis are spread across disciplines. This makes difficult the development of behavior-analytically oriented programs, and impedes regular contact among colleagues who share common interests. However, this separation by disciplines can be a source of strength if it is used to develop interdisciplinary programs. In this article we describe how a bottom-up strategy was used to develop two complementary interdisciplinary MS programs in applied behavior analysis, and conclude with a description of the benefits—some obvious, some surprising—that can emerge from the development of such programs.

Key words: interdisciplinary programs, teaching, master's degree

In the late 1970s, behavior analysis at California State University, Los Angeles (CSULA) reflected a situation common at many colleges and universities: There were few behaviorally oriented faculty members at the school, and we were thinly spread across disciplines. Our scant distribution gave rise to two related problems. First, the lack of faculty permitted only diluted presentations of the subject matter, with only an occasional behaviorally oriented course presented among a deluge of traditional courses. As a result, behavior analysis had little visibility, and it was difficult to demonstrate to students the comprehensive and coherent nature of the behavior-analytic approach. Rather, as Shull (1995) has also noted, the effect of this limited presentation, within the context of a broad variety of cognitively oriented courses covering many aspects of human behavior, was to make behavior analysis seem narrowly applicable: relevant only to the simple behavior of animals. In effect, limited presentations of the material sometimes had a negative effect on students' perceptions, making it difficult to attract students to the field and thereby provide any justification for increasing the size of the behavioral faculty.

This lack of faculty naturally produced a second problem: political weakness. With few faculty members concentrated within any single unit, it was difficult to influence hiring decisions and curriculum development so as to establish programs that might offer a more comprehensive and attractive presentation of the behavioral subject matter.

In the face of these problems, however, we found that behavior analysis offered some unique solutions. First, unlike most (if not all) other schools of psychology, the general applicability of behavior-analytic techniques means that behaviorally oriented faculty may find employment in a wide variety of different fields within the university. Indeed, perusal of a recent membership directory of the Association for Behavior Analysis (ABA, 1992) reveals faculty in education, special education, counseling, psychology, rehabilitation, and in the pediatric and psychiatric departments of medical schools. Thus, despite the lack of concentration of behavioral faculty within a single department, the relevance of behavior analysis to many different disciplines does encourage the accumulation of analysts within the university setting. And it is this diverse accretion that provides the potential for developing interdisciplinary programs.

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In dealing with this diversity of applications, behavior analysis provided a second solution; because, again unlike general psychology, the conceptual rigor of the behavior-analytic discipline has a unifying influence that helps to transcend traditional political boundaries at the university and builds bridges across academic units. In speaking precisely the same language based on a common conceptual scheme, we found that despite our allegiance to different disciplines (e.g., experimental psychology and counseling in this case), we behavior analysts had as much or more in common with each other as with colleagues in our respective disciplines.

As a result of these commonalities, we were able to found not one but two graduate programs in applied behavior analysis. Currently the Department of Psychology and the Division of Administration and Counseling each offer an MS with an option in applied behavior analysis. These are distinctive programs, with curricula different from each other and from other MS degrees offered by the respective departments. We describe how these programs were formed and the nature of these programs, in the hope of helping others, in comparable circumstances, to establish interdisciplinary behavioral training programs.

Developing Interdisciplinary Master's Programs in Applied Behavior Analysis

The minimal conditions. From our experiences in developing the programs (and more recently with the elaboration of accreditation standards by ABA), it has become clear that if the course offerings of a single department are inadequate and an interdisciplinary approach will be needed to produce a program, it will be likely to require a collaboration between a psychology program and some practice- oriented discipline such as counseling, special education, or rehabilitation. The psychology program, with its sympathy toward theory and research methodology, tends to serve as a natural home for courses in experimental analysis (often under the guise of courses in learning), courses in conceptual analysis, and courses in methodology such as single-case design. If the program lacks anything, it is likely to be in the areas of application and technique. Practice-oriented disciplines, on the other hand, generally have in place the mechanisms with which traineeships, field placements, and the like can be set up, and it is in programs such as these that detailed multisemester programs in the procedures of applied behavior analysis can be supported. If these programs lack anything, it is likely to be in the very areas in which psychology programs have their strengths.

Thus, both disciplines can contribute to the production of a distinctive master's degree in applied behavior analysis. Without the conceptual and methodology courses from psychology, students would acquire a set of effective techniques but would lack the underpinnings that allow them to see the behavior-analytic approach as distinctive and different from other approaches within the larger technical area (Michael, 1980). For example, students getting a master's degree in counseling would tend to see these techniques as largely representing counseling per se, rather than as one approach to counseling and as an application of a more generally applicable set of procedures relevant to the prediction and control of both human and animal behavior. Conversely, without the practice-oriented component, there would be no opportunity to train students in the application of behavioral procedures, and the program could be nothing more than an MA degree in psychology. It was only through a synthesis of conceptual, scientific, and professional practice components that the program could come into being.

Strategies and tactics for developing the program. Our experience suggests that a bottom-up approach, starting

with the piecemeal establishment and modification of individual courses in each department, is more achievable than the top-down option, involving as it does the formulation of a complete interdisciplinary program with multiple interrelated course proposals to shepherd through the various committees as well as the development of an ad hoc organization across disciplines to seek its adoption. It is perhaps a manifestation of the utility of the bottom-up approach that courses for the two programs were developed independently before an interdisciplinary program was ever considered. Thus, it was to implement the expansion of behavioral course offerings in the Department of Psychology that two new elective courses were developed and added to the single, occasionally taught, graduate seminar in behavior modification. Likewise, in counseling, the graduate sequence of courses in applied behavior analysis was first developed as part of a certificate program for educators.

Only after these courses were in place did it become apparent that a master's program in applied behavior analysis could be developed by combining the behavior analysis courses in psychology with the program in counseling. But early in the process of formulating the program, it became clear that the logistics of coordinating departments and managing students' progress in a single, jointly administered program would be difficult. Instead, students would have to enroll in one department or another—there could be no middle ground without establishing a separate, centrally administered master's degree in applied behavior analysis. So, rather than take on this formidable and probably fruitless task, the bottom-up strategy was maintained. It was decided early that there would be two independent but complementary programs. Each program would be offered as an option for the MS in its respective discipline, and each would be designed to meet the particular qualifications required of MS graduates in that discipline.

This approach proved to be quite effective. With all of the courses already in place, there was no real basis for opposition from faculty. The fact that the programs required no additional resources, but instead made more effective use of what were now existing resources, was an effective balm for the administration's concerns about proliferating programs where two seemingly duplicate programs were being developed. Incorporating the programs into each of the departments involved only paperwork; the applied behavior analysis options strengthened the offerings of the respective departments at no discernible cost. In essence, the tactic of program development employed here may be simply stated: Change behavior in small steps.

Administering and maintaining the program. The two programs have proven to be easy to administer. Students' progress toward the completion of degree requirements within each program is evaluated by the respective department just as with any other degree. In addition, the two-program structure allows for great freedom and independence in modifying program requirements: Because each department administers its own requirements, neither needs to confer or coordinate with the other in order to change any features of its own program, except perhaps the times and quarters in which various courses are scheduled.

Developing Applied Behavior Analysis at CSULA

Implementation of the bottom-up strategy may be illustrated by a brief recounting of the development of applied behavior analysis at CSULA in the late 1970s and early 1980s. The first step, bringing more courses into the curricula of the psychology and counseling programs, proved to be the single most difficult step because the course proposals were, by and large, initiated by isolated faculty members

seeking to affect the allocation of resources (e.g., time, classroom space, students, teaching units) within their own disciplines. Other faculty reacted by protecting their own turf, and justifications had to be provided with respect to enrollment and need for the course. But by moving in a course-by-course fashion, much was eventually accomplished.

In psychology, an introductory course in conceptual behavior analysis was the first new course proposed. To demonstrate its feasibility and student interest, it was taught for several years as a special topics course before a proposal was made to adopt it permanently as an elective offering. Once it was adopted, it was quickly followed by a course in single-case design. Of the two, surprisingly, it was the latter that engendered the most resistance, especially from faculty with statistical backgrounds who were concerned about the generalizability of data arising from the use of small samples. Their concerns could frequently (although not always, and not to this day) be allayed through discussion. In fact, what made the course easiest to sell was the utility of single-case designs for assessing nonbehavioral psychological procedures. Clinical psychologists were impressed by the applicability of the approach to the clinical case, even while statisticians belittled its value.

During this same period, two other behaviorally oriented courses were developed by modifying the content of existing courses. Thus, as the zeitgeist in psychology continued its cognitive sway, faculty interest in the traditional undergraduate and graduate courses in learning diminished as more cognitively oriented courses were introduced. Admittedly, this was a unique and fortuitous event, for it left these courses for behaviorally oriented faculty to teach. This made it easier to move these courses from the traditional theory-oriented instrumental learning conceptualization to a more behavioral orientation. For the undergraduate course, this simply meant adopting behaviorally oriented undergraduate learning texts such as Catania (1984), Mazur (1994), or Schwartz (1984). For the graduate seminar, which was described at that time as a survey of current topics in learning, appropriate readings were introduced. And so, by 1982, the Psychology Department had three courses addressing the conceptual and experimental analysis of behavior and a methodology course devoted solely to single-case design.

During this same period, the Division of Administration and Counseling developed its series of courses in applied behavior analysis. The first of these courses provided an overview of applied behavioral contingency management and was designed for persons pursuing master's level work as school counselors or school psychologists. Although developing the course was not difficult, serious opposition among faculty preceded its inclusion as a requirement in the curriculum. The course proved to be so popular, however, and so valuable to novice counselors and psychologists in the field that with very little further difficulty three more behaviorally oriented courses were developed: an advanced course in applied behavior analysis with emphasis on consulting skills, a course focusing on in-depth study of selected topics within behavior analysis, and a course, offered at both the graduate and undergraduate levels, on self-management.

This series was initially formalized as a credit-certificate program for educators. However, the courses became so popular with persons working in settings other than education (e.g., in agencies) that their focus was broadened, and a practicum course was developed to allow students to receive supervision while implementing behavior-analytic procedures in a variety of applied settings.

Thus, by independent but complementary developments within the two departments, the basis for a marriage was built. A sufficient breadth of courses now existed to support comprehensive master's programs in ap-

TABLE 1

Course requirements in the Psychology and Counseling programs in applied behavior analysis

Course	Units
Core courses required in both programs (45 quarter units)	
Psychology	
Psychology of Learning and Behavior[a]	4
Introduction to the Analysis of Behavior[a]	4
Single Case Research Design[a]	4
Seminar in Learning and Behavior	4
Seminar in Behavior Therapy	4
Counseling	
Behavioral Counseling and Self-Management[a]	4
Behavior Analysis in School, Home and Agency Settings	4
Advanced Behavioral Contingency Management in Schools	4
Advanced Study of Behavior Analysis in Education	4
Practicum: Staff Development and Consultation	3
Field Experience	6
Courses required in the Psychology program (12 quarter units)	
Elective Graduate Seminar in Psychology	4
Graduate Research in Psychology	4
Thesis	4
Total units for MS in Psychology with an option in ABA	57
Courses required in the Counseling program (19 quarter units)	
Theoretical and Developmental Aspects of Behavior	4
Measurement Issues in Counseling	4
Sociological and Cultural Factors in Counseling	4
Practicum: Counseling	3
Research and Program Evaluation in Counseling (Thesis)	4
Total units for MS in Counseling with an option in ABA	64

[a] Undergraduate course.

plied behavior analysis, programs that could appreciate the arguments expressed by Baer (1981) on the usefulness of behavioral technologists and incorporate the scientific and conceptual elements suggested by Michael (1980). Table 1 shows the common core courses and the specialized offerings of each department.

The Programs in Applied Behavior Analysis

Prerequisite preparation. Students are admitted to the programs through either the Counseling or Psychology Departments. But this interdisciplinary admissions policy causes a problem: Because the two departments have different entrance requirements, the two programs also have different entrance requirements, so students come into the programs with divergent backgrounds.

There are several ways this problem might be solved. The most obvious would be to require students to remedy their deficiencies by completing a set of prerequisite courses prior to their admission to the program. But this would cause an administrative problem by creating a category of students not matriculated in either degree program but left in some unclassified status. Second, it would mean that no student, except one with the unlikely combination of majors in both counseling and psychology, could ever be admitted directly into the programs. Finally, it means that there must be a second admissions process whereby students move from prerequisite study to matriculation in the MS program.

The solution we adopted to avoid these problems was simple and (we think) elegant. The requisite undergraduate courses were simply incorporated into the core of the MS programs (Table 1). Consequently, it is only after students are admitted into the respective master's programs that they complete their prerequisite studies. Thus the undergraduate course Psychology of Learning and Behavior is the prerequisite to the graduate seminar of the same name; the undergraduate course Introduction to the Analysis of Behavior is the prerequisite to the graduate Seminar in Behavior Therapy; and the undergraduate counseling course Behavioral Counseling and Self-Management is the prerequisite to the entire series of graduate counseling courses in behavior analysis. Students in either program need only complete these courses to qualify for the more advanced courses. The mechanism of prerequisites, rather than admission status, is thereby used to ensure that students have proper preparation for their advanced studies. Because the programs allow 16 units of undergraduate courses, those students who may have completed any of these courses as a part of their undergraduate training can substitute a course of comparable status and thereby earn the units needed to complete the program.

Structure of the core program. Certainly the most salient feature of the entire curriculum is the emphasis on analysis and application. The psychology courses emphasize experimental and conceptual analysis, and the counseling courses emphasize application. Although the course in single-case design focuses on methodology, the case-oriented books used in this course (Barlow & Hersen, 1984; Kazdin, 1982) illustrate conceptual analyses as well. However, it is the undergraduate course Introduction to Behavior Analysis that formally stresses the conceptual analysis of situations from daily life. This is accomplished by using vignette-oriented texts such as Miller (1980) and Grant and Evans (1994). The principal goal in this course is to introduce students to behavioral terminology and to teach them to describe and analyze situations of daily life with this terminology. There is a sustained emphasis here to teach students to use behavioral language to replace inferred mental processes (Branch & Malagodi, 1980). This theme is carried forward and magnified in the graduate seminar in behavior therapy, in which the notions of mental illness, feelings, and self-concept are examined from the radical behaviorist's point of view (Skinner, 1989), and emphasis is placed on the analysis of problem-generating environments and their therapeutic rectification without resort to mental-illness constructions.

The data of experimental analysis are similarly considered in two courses. Thus, in the undergraduate psychology course Learning and Behavior, students are given a traditional undergraduate introduction to the animal literature in experimental analysis, and in the graduate Seminar in Learning and Behavior they are provided with an advanced consideration of selected topics in experimental analysis chosen for their apparent relevance to the future development of applied behavior analysis (Pierce & Epling, 1980). Most recently, these courses have focused on issues related to stimulus control and stimulus equivalence.

In the Counseling Department, the courses in applied behavior analysis focus on application and consultation. With regard to the first, and unlike the presentation in psychology, the technical features of application—problem definition, data collection, intervention, and assessment—are all presented as parts of a single procedure (Sulzer-Azaroff & Mayer, 1991). Students first practice the rudiments of these procedures in the undergraduate course in self-management in which they themselves serve as the client. In the first graduate course, students must complete a project with another person as the client. In the next course, training moves into the development of consul-

tation skills, and students must teach another person the procedures of problem definition through assessment and learn the skills of consulting with organizations. This focus on consultation in real-life situations continues with a practicum in staff development and consultation to provide a professionally supervised experience in promoting change in agencies.

Finally, it should be noted that both programs require a thesis rather than a comprehensive examination. This element of the program was adopted from the outset without debate because we believed that an applied MS program should end with an exercise in the competent application of principles rather than yet another demonstration of knowledge through examination. Our experiences since that time strongly support that decision. We have seen and can confirm many of the benefits of a thesis requirement cited by Heward, Heron, and Cooper (1990). In addition, we have found theses to offer some benefits unique to interdisciplinary programs. Though not by design, all but one thesis committee to date have included members from both counseling and psychology. As a result, the committees have had members with applied and experimental-conceptual backgrounds, a fact that has, on occasion, greatly benefited students with respect to the design and execution of their theses. The interdisciplinary structure of the program seems to invite this mix by encouraging students to get someone from "the other side" on the committee. Interdisciplinary thesis committees have also provided an additional medium for interactions between faculty members in the different departments.

Special benefits of an interdisciplinary program. Aside from providing a broad base of courses to draw on, the conceptual unity of courses in the two programs has been found, over time, to provide many benefits—some expected, some not. Bringing the resources from one department into the program allows students from the other department to profit from them. For example, the school-related field placement opportunities provided by the Counseling Department significantly enrich the opportunities in education available to psychology students. Conversely, the basic conceptual-experimental coursework and field experiences in psychiatric settings provided by the Psychology Department give students in counseling opportunities not normally available to them.

The diversity of faculty interests allows the two programs to serve students with correspondingly diverse goals. The Counseling Department provides additional courses in counseling to serve the interests of students heading toward a career in education or related doctoral work. The program in psychology, with its access to general courses in psychology, serves students interested in becoming master's level (and perhaps one day, state-licensed) direct-service providers, as well as those interested in continuing toward a doctoral degree.

The current arrangement also benefits the faculty. By having two programs, the separate interests of faculty in the constituent departments can be served without competing for resources or courses within the program. Because neither program has any resources of its own, no budget, no office space, and no courses, resources acquired within the two departments are brought to the programs. The contingencies thus require one to acquire resources by dealing with colleagues within one's own department rather than by competing with other members of the behavior analysis program.

The current program's dual-track structure provides at least one other benefit, one that did not become apparent until problems emerged in the state's budget. These problems resulted, naturally enough, in reductions to the university's budget and the threat of course and program cancellations. In the face of these threats, we argued that the courses in each of the constituent departments of the applied behavior

analysis program functioned as service courses for the other department. Thus, it could be argued that dropping the undergraduate learning course from the psychology curriculum would cripple a graduate program in counseling. This argument seemed to be convincing and perhaps helped both programs to weather the crisis with no losses (yet).

The synergistic effect of having programs housed in different departments has been noted in other circumstances as well. When issues arise, our voice is enhanced by being able to list multiple departments as supporting an action or issue. Outside of the university, by serving to focus our combined efforts, the programs have led to the founding of a local affiliate of ABA. The Association for Behavior Analysis and Therapy/Southern California is housed at the University, and it is through the auspices of this organization that southern California is home to an annual behavioral conference. As a result of these developments, and in combination with the northern California ABA affiliate, a statewide organization—Cal-ABA—has been formed. The organization has as its first goal the development of a registration, and ultimately a licensing process for behavior analysts in California.

Evaluations of the Program

Enrollment in most of the courses in the program is, by any measure, healthy. In part this is because the courses do not depend only on the interdisciplinary behavior analysis majors, but rather serve to fulfill a variety of different requirements. In psychology, the undergraduate learning course (90 students per year) and the course Introduction to the Analysis of Behavior (45 students per year) also serve as alternates to other courses in meeting the undergraduate core psychology requirements. Likewise, the graduate course in learning serves a similar function in the Psychology Department's MA and other MS programs. A similar situation exits in counseling, where all of the courses in the behavior analysis MS program also serve students enrolled in other options in counseling. This overall strength protects weaker courses (such as the low-enrollment course in single-case design) tied to the MS programs.

The students who enroll in the program are a diverse group. Typically, four or five students enroll in the program per year. Some are local, graduates of CSULA or other universities in southern California, but some come from other states as well. An equal proportion are professionals with a BA who are from southern California and are returning to school to gain additional skills.

Beyond the quantitative, there is, of course, the question of quality. How good are the programs? Two measures suggest themselves: (a) an assessment of the product, namely the students graduating from the programs, and (b) an assessment of the programs themselves. If the success of students after training is any measure, the programs seem to be quite effective. Approximately 25% of our graduates (eight) have been admitted to doctoral programs in behavior analysis at schools such as Kansas, Massachusetts, Ohio State, and Western Michigan. Graduates who have gone into private practice at the master's level have also fared quite well. Several have become involved with agencies for training independent living skills, and others have come to the program to further their formal behavioral education while employed at such agencies. Still others are running group homes for the developmentally disabled as private businesses. One graduate was hired as the behavioral specialist for the head trauma and stroke unit of a local rehabilitation hospital, and one was hired to the psychology faculty of a junior college.

Perhaps the most unusual employment was found by a graduate who combined his formal studies in behavior analysis with additional work and study at animal training ranches serv-

ing the local movie industry. He has since developed a professional practice spanning most of southern California, receiving referrals from veterinarians to provide therapeutic retraining for pets with behavior problems. He has nearly 40 employees and also produces a line of cassette tapes for home instruction in handling common pet problems (Appelman & Steinberg, 1992).

A second measure of program quality was recently provided by ABA, which awarded accreditation to both master's programs. What this accreditation ultimately means may depend on the development of behavior analysis as a master's level profession in California. With the recent passage of legislation recognizing the role of behavior analysis in California schools, however, it appears that professional behavior analysis in California will continue to grow (Mayer & Mayer, 1995). It will be with that growth that accreditation by ABA will take on increasing significance.

Finally, to look to the future: The most immediate goal of the program is to strengthen the offerings in psychology in the area of behavioral medicine. For counseling, the goal is to bring high-quality behavioral training to those in the schools affected by the recent legislation. Beyond that, there always remain the issues of professional development, the acquisition of statutory recognition of master's level behavior analysts in California, and the role our MS training programs will play in that process.

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